

Amendments to the Drawings:

Replacement sheets for FIGS. 1-4b are enclosed which formalize the drawings that were submitted with the application. No other changes have been made. Formal drawings are submitted herewith under separate Letter to the Official Draftsperson. Approval by the Examiner is respectfully requested.

REMARKS

The Examiner objected to the drawings because the lines and text in the figures were not uniform in size and width. Formal drawings correcting the informalities noted by the Examiner are submitted herewith under separate letter to the draftsman. Approval by the Examiner of the changes to the drawings is respectfully requested.

Claims 1-6 and 8-15 have been amended. Claims 7 and 16 have been cancelled. Claims 1-6 and 8-15 are currently pending in the application.

Claims 7 and 16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kameyama (US Pat. No. 5,416,516) in view of Cham et al. (GB 2,328,338; hereinafter "Cham"). Applicant has cancelled Claims 7 and 16 so this rejection is now moot.

Claims 1- 6, 8, and 10 -15 were rejected under 35 U.S.C. § 102(b) as being anticipated by Kameyama et al. (US 5,416,516; hereinafter "Kameyama"). Claim 9 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kameyama (US 5,416,516) in view of Rambaldi et al. (US 2004/0095488; hereinafter "Rambaldi"). Applicant traverses these rejections and respectfully requests reconsideration of the application.

102(b) Rejection

In order for a reference to anticipate an invention, each and every element of the claimed invention must be found in a single reference. "The identical invention must be shown in as complete detail as is contained in the ... claim." MPEP § 2131. "Moreover, it is incumbent upon the examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference." Ex parte Levy, 17 USPQ2d 1461, 1462 (Bd Pat App & Inter 1990).

Kameyama discloses an image capture device that includes an image sensor having pixels arranged in rows and columns. Transfer regions are positioned

between the columns of photosensitive regions, as shown in figures 1 and 2. The transfer regions receive and add the electrical charges read out from respective photosensitive regions. The image capture device has two modes for reading the electrical charges out of the photosensitive regions. Figure 1 in Kameyama illustrates the field reading mode and figure 2 depicts the frame reading mode.

The Examiner argues the transfer region and defective pixels shown in figure 2a of Kameyama teaches substitutional pixel sites, and that the transfer region and defective pixels have a different design from the active imaging pixels. Independent claims 1, 8, and 10, as amended, recite “wherein each active imaging pixel located at the one or more predetermined substitutional pixel sites is replaced with one or more substitutional pixels each comprising circuitry of a different design from the active imaging pixels where the one or more substitutional pixels provides data, information and/or function different from the active imaging pixels for improving performance, operation, manufacture, and/or assembly of an imaging system.” Nothing found in Kameyama teaches this aspect of the claimed invention. Kameyama does not teach replacing one or more active imaging pixels within a bounded array of active imaging pixels with one or more substitutional pixels. Therefore, for at least the following reason, Kameyama does not anticipate Applicant’s independent claims 1, 8, and 10.

Applicant notes the Cham reference (GB 2,328,338) cited by the Examiner teaches an image sensor having an array of pixels arranged in rows and columns. The sensor includes both light sensitive pixels and dark pixels. As disclosed in Cham, dark pixels are light sensitive pixels that are shielded from the light. The shielding can be implemented by coating or covering the light sensitive pixels with an opaque layer to prevent any light from striking the light sensitive areas of the pixels. The dark pixels in Cham are positioned on the periphery of the array (pixels 24) and within the array (pixels 36).

Applicant respectfully submits Cham also does not anticipate Applicant’s independent claims 1, 8, and 10. Independent claims 1, 8, and 10, as amended, recite “a plurality of photosensitive sites each comprising circuitry designed to convert incident light into a charge, wherein the plurality of photosensitive sites

form a bounded array of active imaging pixels” and “one or more substitutional pixels each comprising circuitry of a different design from the active imaging pixels.” Dark pixels are designed as light sensitive pixels, and as such, the circuitry of a dark pixel is the same as the circuitry of a light sensitive pixel. It is the shielding overlying a pixel that causes a light sensitive pixel to become a dark pixel. Thus, Cham does not disclose “one or more substitutional pixels each comprising circuitry of a different design from the active imaging pixels.” Applicant therefore submits Cham does not anticipate Applicant’s independent claims 1, 8, and 10.

“Claims in dependent form shall be construed to include all the limitations of the claim incorporated by reference into the dependent claim.” 37 CFR § 1.75. Claims 2-6 depend from and include all of the limitations of independent claim 1, while claims 11-15 depend from and include all of the limitations of independent claim 10. For at least the reasons discussed above, Kameyama does not anticipate independent claims 1, 8, and 10. Accordingly, dependent claims 2-6 and 11-15 are also not anticipated by Kameyama.

103(a) Rejection

The Manual of Patent Examining Procedure states the following in Section 2143:

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Applicant submits the combination of Kameyama and Rambaldi does not render Applicant’s claim 9 obvious because the combination does not meet the three basic criteria. The argument below, however, will focus on the third criterion.

Rambaldi teaches an image sensor having an array of pixels arranged in rows and columns. Techniques for compensating for defective pixels are disclosed. One technique includes interpolating the output values of surrounding pixels to compensate for defective pixels.

Applicant's earlier arguments with respect to Kameyama apply to this rejection as well. Nothing found in Kameyama teaches or suggests replacing one or more active imaging pixels within a bounded array of active imaging pixels with one or more substitutional pixels." Additionally, nothing found in Rambaldi teaches or suggests generating "replacing one or more active imaging pixels within a bounded array of active imaging pixels with one or more substitutional pixels." Therefore, for at least the following reasons, Applicant respectfully submits the combination of Kameyama and Rambaldi does not render Applicant's independent claim 8 obvious.

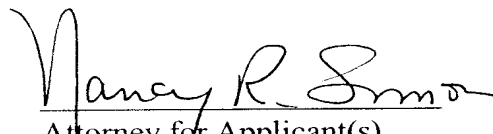
"If an independent claim is not rendered obvious by prior art, then any claim depending from the independent claim is not obvious." In re Fine, 5 USPQ2d 1596 (Fed. Cir. 1988) (see also M.P.E.P. § 2143.03). Claim 9 depends from independent claim 8. For at least the reasons discussed above, the combination of Kameyama and Rambaldi does not render independent claim 8 obvious. Therefore, claim 9 is also not obvious in view of Kameyama and Rambaldi.

It is believed that these changes now make the claims clear and definite and, if there are any problems with these changes, Applicants' attorney would appreciate a telephone call.

In view of the foregoing, it is believed none of the references, taken singly or in combination, disclose the claimed invention. Accordingly, this

application is believed to be in condition for allowance, the notice of which is respectfully requested.

Respectfully submitted,


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Enclosures: Replacement Figures 1-4b
Letter to Draftsperson

If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.